

ELM Management Plan Calendar Year 2004

I. Introduction

The Director of Fermi National Accelerator Laboratory established the [Ecological Land Management Committee](#) (ELM) to provide technical assistance and develop recommendations for the maintenance and/or restoration of available lands. The ELM Committee's management goals are to maintain and build biological diversity, conserve natural resources and increase the site's aesthetic appeal.

The 6800-acre Fermilab site is divided into management tracts as shown on the [CY 2003 Fermilab Land Management Map](#), which is updated annually to reflect changes in land usage. These tracts are defined by current land-use practices and habitat diversity:

- Technical Area (TA) tracts are committed exclusively to the high-energy particle physics mission of the Laboratory;
- Agricultural (AG) tracts are under licensed agreements for agricultural use;
- Recreational Area (RA) tracts support non-programmatic, recreational activities;
- Residential (R) tracts are areas of housing in the Village;
- and Ecological Land Management (ELM) tracts enhance the natural resources of the Laboratory.

Tract boundaries are meant to be dynamic and should change with management needs and ecological considerations. However, changes in Agricultural tract boundaries need the Director's approval.

Annually, the ELM Committee reviews the laboratory's accomplishments towards its land management goals and recommends activities for the next year to the Director. After this general summary is prepared (Sections II and III), the Committee advises the specific management of the site's ELM tracts (IV). This section of the Annual Plan also presents the long-range for each tract.

II. ELM Accomplishments 2003

A. Land Development

The Land Management Committee evaluated the current ELM numbering scheme and approved the combinations of ELM 11, 15, 16, and 17 as ELM 11 and ELM 9, 19, and 20 as ELM 9. Those small areas which require individual attention will be incorporated into the long-range plans of the larger areas.

In addition to the newly combined tracts, the Committee specifically evaluated ELM tracts 4, 6, 14, 24, 25, and the Nepese Pond (formerly known as the Oxidation Pond) in ELM 9. Their recommendations were incorporated in the long-range and annual plans of these tracts (see Section IV).

B. Flora

1. Status Report

Robert F. Betz prepared the annual status report of flora onsite ([Botanical Report-Fermlab 2003](#)).

2. Enrichment

a. **Prairie:** Enrichment seed mix was broadcast by Roads and Grounds personnel in a combination of old mesic and wet areas within ELM tracts 1, 21, 23, 26 and 28.

b. **Woodland:** Woodland enrichment took place in ELM tracts 2, 14, 24 and 25. Blank tree grow tubes were replanted with acorns.

3. Seed Collection

a. Hand-Harvested

Seeds from approximately 100 forb species were hand-collected by laboratory personnel and prairie harvest volunteers.

1) Summer Intern

Roads and Grounds's summer intern Ryan Campbell made a significant contribution to the amount and variety of seed collected this year. His harvest totals included seed from 18 woodland species and 22 prairie species (see Appendix A for a complete species list).

2) Dr. Betz

Robert Betz supplemented Fermlab's seed bank with collection at several local prairie systems.

3) Prairie Harvest Volunteers

Fermlab hosted two volunteer prairie harvests this year. The first, on October 4, drew 150 people. The second harvest, on November 1, saw a turn-out of 225 people. Species targeted at these harvests included nodding wild onion (*Allium cernuum*), pale purple coneflower (*Echinacea pallida*), stiff coreopsis (*Coreopsis palmata*), rattlesnake master (*Eryngium yuccifolium*), showy tick trefoil (*Desmodium canadense*), false sunflower (*Heliopsis helianthoides*), round-headed bush clover (*Lespedeza capitata*), wild quinine (*Parthenium integrifolium*), obedient plant (*Physostegia virginiana*), sweet black-eyed

Susan (*Rudbeckia subtomentosa*), Culver's root (*Veronicastrum virginicum*), bottle gentian (*Gentiana andrewsii*) and cream gentian (*Gentiana flavida*).

b. Machine-Harvested

Roads and Grounds personnel combined ELM 24, 25 and 26 for prairie matrix and forb seed.

c. Traded

Forb seed was received from Kane County, Will County, Ball Seed Company, and Applied Ecological Services in exchange for combined bulk seed.

4. Vegetation Control

As part of the noxious weed control program, Roads and Grounds personnel sprayed teasel (*Dipsacus laciniatus*), eastern cottonwood (*Populus deltoides*), poison hemlock (*Conium maculatum*), oriental bittersweet (*Celastrus orbiculatus*), purple loosestrife (*Lythrum salicaria*), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora*) and honeysuckle (*Lonicera sp.*) in ELM tracts 1, 2, 3, 4, 14, 24 and 25. Unfortunately, the Roads and Grounds department does not have the resources to effectively manage the spread of these exotic species.

5. Prescribed Burns

, For three years, the Department of Energy (DOE), Fermi Area Office (FAO), reviewed Fermilab's burn plan and granted an annual waiver to the DOE moratorium on burning. After using this process, FAO was able to demonstrate to the Office of Science that they had an effective review process and understood the prescribed burning program at Fermilab and the adequacy of controls that are in place. Fermilab is in the process of developing a Fire Management Plan that will effectively merge a lot of the information submitted to FAO previously in annual waiver package requests. Once officially completed and submitted to FAO, they will be able to acknowledge and accept it for DOE. FAO and Fermilab see that as a formal, documented way to lift the moratorium here. Thereafter, it will be a simple matter of adequate implementation and on-going maintenance of the Fire Management Plan by Fermilab.

The Fermilab site is organized into twenty-nine fire management areas. Over the spring and fall of 2003, Roads and Grounds personnel conducted prescribed burns in eleven of them.

C. Wildlife

1. Birds

Peter Kasper prepared the annual report on the on-site bird population which can be seen at [2003 Fermilab Bird Report](#). Peter Kasper also continued to compile bird observations (started in 1987) at his website [The Fermilab Bird List](#).

2. Butterflies

a. Status Report

The compilation of butterfly observations for the past five years may be seen at [Butterfly Observations](#). Tom Peterson prepared the annual survey of butterflies onsite and reported his results in [Butterfly Report to the ELM Committee for 2003](#).

b. Child-Friendly Website

[Welcome to Fermilab's Butterflies](#) features a butterfly search engine and a guide to observing butterflies in a child-friendly website format.

c. Introduced Species

Although the attempted introduction of the silver-bordered fritillary (*Boloria selene myrina*) in 2002 failed to yield butterflies in 2003, plans are being formulated to do another experimental introduction. Fermilab has also now served as a source of butterflies for release. In September 2003, four female purplish coppers (*Lycaena helloides*) were collected at Fermilab by Tom Peterson of Fermilab and Doug Taron of the Peggy Notebeart Nature Museum in Chicago. Doug Taron will take eggs from these females to breed purplish coppers for a reintroduction into a Chicago region natural area.

d. Collaboration with the Northern Illinois Butterfly Monitoring Network

Two butterfly observation routes at Fermilab are now included in the data collected annually by the Northern Illinois Butterfly Monitoring Network (BMN): the Dion skipper (*Euphyes dion*) habitat along Indian Creek and the meadow fritillary (*Boloria bellona*) habitat on the east side of the site.

3. Frogs

The website [Frogs at Fermilab](#) gives an overview of the frog species at the Lab, addresses Frequently Asked Questions, and provides numerous links to other sources of information.

4. Deer

An aerial survey was conducted of the Fermilab site on March 7, 2003, and February 6, 2004. The estimated population of deer for both these counts was between 140 and 150 individuals. A total of 46 animals were removed in March, 2003. These data suggest that the program has reached an equilibrium at around the 140 to 150 number, by removing between 40 and 50 animals each year. The plan is to remove 46 animals this year, beginning in March. Subsequent recruitment and mortality, along with immigration and emigration, should restore the numbers over the next year. The condition of the understory continues to improve as a result of the deer management program.

D. Research

1. PST Projects

For the past three summers, the lab has sponsored the Pre-Service Teacher (PST) program. Through this DOE-funded program, newly graduated teachers are engaged in direct research prior to taking their first teaching jobs. Each teacher is paired with an ELM Committee member who helps him/her to develop a research project. This year paired a teacher with Peter Kasper to study birds, a second with Tom Peterson to study butterflies, and a third with Rod Walton to study mosquitoes. The Education Center supplied PST participants with equipment and workspace.

2. NERP Projects

In 1989, Fermilab was designated a National Environmental Research Park. Current project titles, followed by principal investigator and home institution, are as follows:

- a. *Observations of the Heron Rookery at Fermi National Accelerator Laboratory*/David Workman/Illinois Math and Science Academy
- b. *Bat house project at Fermilab*/Charles Klein/Windy City Grotto

- c. *IDNR Forest Watch Monitoring Program at Fermilab/Jean Rhodes/IDNR*
- d. *Assessing carbon cycling in restored grasslands using stable isotopes/Miquel Gonzalez-Meler/ UIC/ANL*
- e. *Assessment of the impact of biological controls on garlic mustard (*Alliaria petiolata*) and non-target species in forest communities/Vicki Nuzzo & Bernd Blossey/Natural Area Consultants and Cornell University*
- f. *Effects of tree removal on recovery of ground cover in Big Woods at Fermilab/Elizabeth Aicher/ Northern Illinois University*
- g. *Differences in reproductive success of prairie plant species between restored and remnant prairies/Julie Jastrow/Argonne National Laboratory*
- h. *Feedbacks between plants, mycorrhizal fungi and soil nutrient dynamics/Julie Jastrow and Mike Miller/Argonne National Laboratory*
- i. *Bird surveys at Fermilab/Peter Kasper, Denis Kania and John Pomatto/Fermilab and DuPage Birding Club*
- j. *Phylogeography of four natricine snakes of the Great Lakes region at Fermilab/Jace Robinson/ Northern Illinois University*
- k. *Investigation of carbon dioxide and nitrogen fluxes in terrestrial ecosystems at Fermilab/Roser Matamala/Argonne National Laboratory*

E. Community Outreach

1. Third Thursday Clean-Ups

Roads and Grounds personnel continued to organize site clean-ups on good-weathered third Thursdays (<http://www.fnal.gov/pub/news03/cleanup.html>). Targeted areas included Wilson Hall parking lots and shorelines, Pine Street and Batavia Rd, A-1 and Wilson Roads, and Casey's and Andy's Pond shorelines.

2. Habitat Restoration Volunteers

A volunteer group was formed this summer to remove non-native vegetation from some of the more public areas on site (see <http://www.fnal.gov/pub/news03/Saturday-brush-cleanups.html>). The Habitat Restoration Volunteers meet the fourth Saturday of the month from March through October. Targeted areas included the pathway between Wilson Hall and the Lederman Science Center, the woods along the driveway to the Director's home, and the 2003 Arbor Day site. The group also collected seed at the EJ&E remnant prairie.

3. Prairie Harvest

This year's prairie harvests were again successful in collecting large quantities of desirable species for future prairie enrichment. Total attendance for the two volunteer fall harvests was around 375 people.

4. Arbor Day/Earth Day

Arbor/Earth Day tree planting activities, held in conjunction with Daughters and Sons to Work Day in April, continue to advance the Committee's goal of connecting the Big Woods and Site 29 Woods in ELM-24 to generate a higher quality, less fragmented woodland. Approximately 125 volunteers turned out for the event. 110 balled trees and shrubs, including bur oak (*Quercus macrocarpa*), hazelnut (*Corylus americana*), white oak (*Quercus alba*), red oak (*Quercus rubra*), swamp white oak (*Quercus bicolor*), and bitternut hickory (*Carya*

cordiformis), were planted. Activities also included bird watching with Peter Kasper and a butterfly presentation by Tom Peterson.

5. Seed Exchange Program

An active seed exchange program is now in place with local Forest Preserve Districts and Park Districts to increase the plant diversity in our region. Information and new techniques are shared and exchanged between Fermilab, county Forest Preserve Districts, and state and federal agencies associated with similar projects, such as the U.S. Fish and Wildlife Service. Donating seed to local schools for their own prairie areas has become routine. Since 1993, Fermilab has donated prairie seed to over 40 schools for their prairie restoration projects. Management advice is also given to teachers involved with school prairies.



6. Prairie Reconstruction Video

The Prairie Video Subcommittee, chaired by Beth Witherell, was founded to create a video about the prairie restoration effort at Fermilab for the general public, especially the many users of the Lederman Science Education Center. They completed their work on “Part and Parcel of Nature: The Illinois Tallgrass Prairie at Fermilab” in June 2003, and the film premiered October 17, 2003, as part of a prairie exhibit opening in the Atrium Gallery. The exhibit featured photographs and sounds of the prairie at Fermilab, historical and ecological information on the prairie ecosystem, and an interactive seed-cleaning display. Verlyn Klinkenborg, a member of the *New York Times* editorial board and author of *The Rural Life*, presented a talk titled “The Conscience of Nature” in Ramsey Auditorium in conjunction with the prairie exhibit opening. In his talk, Klinkenborg explored the emotional and philosophical connection that links humans to the natural world. About 300 DVD copies of “Part and Parcel” were handed out at the opening, and additional copies have been distributed by the Lederman Science Education Center staff.

7. Christmas Bird Counts

Members of the DuPage Birding Club organized and conducted the annual spring and Christmas bird counts onsite. The results of the latter may be viewed at [Christmas Bird Count](#).

8. Butterfly Walks

Periodically during lunch hours and on weekends over the summer, Tom Peterson leads butterfly walks at Fermilab. Employees and members of the local community have been welcomed to attend.

9. Eagle Scout Projects

Fermilab continues to benefit from local Eagle Scout projects. Last year, Luke Finforck rebuilt and restained the Margaret Pearson Interpretive Trail signs (photo available at <http://www.fnal.gov/pub/today/today03-12-15.html>).

III. ELM Recommendations 2004

The ongoing activities of Roads and Grounds personnel such as mowing, prescribed burning, enrichment, redistribution of small trees, and noxious weed control are critical to maintaining and building on the Laboratory's ecological improvements. Restoration goals can be further advanced through continued habitat development, intern and community participation, and research programs.

A. Habitat Development

1. Transitional Zones

Savanna-like zones between prairie restorations and adjacent woodlands have been shown to support greater species diversity and species richness. The Committee recommends that enrichment efforts promote development of these transitional zones.

2. Tree Removal

Cottonwood, buckthorn, and other undesirable tree species negatively impact the higher-quality habitats on which they encroach. The Committee recommends that these trees be removed as the Roads and Grounds department's schedule permits.

B. Intern and Community Participation

1. Interns

Previous contributions of Roads and Grounds interns include the pollination of rare lily species on-site, the collection of high-quality seed that was previously uncollected due to time and resource constraints, and the advancement of educational programs like the Fermilab Plant Database. The Committee recommends continued funding of an internship position in the Roads and Grounds Department.

2. Community

Community participation in Arbor/Earth Day plantings, Eagle Scout projects, and volunteer prairie harvests have made an invaluable contribution to the Laboratory's management program. The Committee recommends continued Laboratory support for community participation.

C. Research Programs

- 1.** The Laboratory currently supports a variety of research opportunities and the Committee recommends that we continue to participate and seek out projects compatible with the ecological goals of the Laboratory.
- 2.** The Committee also recognizes a need to update the NERP database and encourage greater congruence in management procedures and research design.
- 3.** The Committee recommends the maintenance of a database of potential research projects for PST program participants.

IV. Tract Management 2004

◆ ELM-1/Inside the Tevatron and extending northeast

Features

Habitat: Prairie; oak savanna; Lake Logo and Main Ring Lake wetland complexes

Wildlife: Great Blue Heron (*Ardea herodias*) and Egret (*Egretta thula*) rookery; remnant-dependent black dash (*Euphyes conspicua*) and eyed brown (*Satyrodes eurydice*); remnant-associated Delaware skipper (*Anatrytone delaware*)

Research: 2 sets of deer exclosures and adjacent controls; NERP projects *Observations of the Heron rookery* and *Differences in reproductive success of prairie plant species between restored and remnant prairies*. Burn NE prairie section annually to study possible control of gray dogwood (*Cornus racemosa*).

Access: Controlled

Other: Site of volunteer harvest

Long Range Plan

Habitat Goal: Prairie; wetland

Enrichment: Overseed needed species

Fire Management: To maintain habitat for over-wintering birds, recommend not burning both northern quarters in the fall. To minimize disturbance of displaying woodcocks, recommend not burning both southern quarters in the spring.

Vegetation Control: Cottonwoods; common reed (*Phragmites communis berlandieri*); purple loosestrife; gray dogwood (*Cornus racemosa*)

Mowing: Firebreaks and trails

2003 Accomplishments and Observations

- ◆ Enriched prairie and marshes with late successional forb species.
- ◆ Burned everything but southeast quarter.
- ◆ Applied herbicide to cottonwoods, purple loosestrife, and gray dogwood.
- ◆ Conducted volunteer harvest.

2004 Plan

- ◆ Control invasive brush.
- ◆ Burn northern quarter and southern quarter fall '04.
- ◆ Select several areas of dogwood in each fire management area, measure via GPS, and track extent of clones over time to determine the impact of burning.

◆ ELM-2/Near the center of the Tevatron berm

Features

Habitat: Oak savanna with degraded, brushy understory

Wildlife: N/A

Research: N/A

Access: Controlled

Other: N/A

Long Range Plan

Habitat Goal: Oak savanna

Enrichment: Overseed with savanna understory species

Fire Management: Burn every 1 to 3 years depending on extent of woody plant infestation.

Vegetation Control: Weedy brush and aggressive tree species such as box elder (*Acer negundo*) and cottonwoods; purple loosestrife

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Enriched with savanna species.
- ◆ Burned spring '03.
- ◆ Applied herbicide to loosestrife.

2004 Plan

- ◆ Burn fall '04.
- ◆ Continue thinning woody exotics.
- ◆ Mow firebreaks around young oak seedlings.

◆ **ELM-3/Western part of the interior of the Tevatron berm**

Features

Habitat: Poor condition wetland with many weedy tree species; large sections underwater

Wildlife: N/A

Research: N/A

Access: Controlled

Other: N/A

Long Range Plan

Habitat Goal: Wet woodland

Enrichment: With native wet woodland species

Fire Management: Burn every 1 to 3 years

Vegetation Control: Cottonwoods

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Burned spring '03.
- ◆ Applied herbicide to cottonwoods.

2004 Plan

- ◆ Enrich with shade-tolerant species.
- ◆ Continue cottonwood control.
- ◆ Burn fall '04.

◆ **ELM-4/Eastern portion of Main Injector extending south and east**

Features

Habitat: Mesic and wet prairie; woods containing mature shellbark hickory, a Biltmore ash, three young king nut hickories, and site's only mature blue ash (*Fraxinus quadrangulata*) and white walnut (*Juglans cinerea*) trees; wetland mitigation area.

Wildlife: N/A

Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Prairie; woods; wetland

Enrichment: Overseed needed prairie species and woodland understory species; enrich woods with appropriate trees.

Fire Management: Burn every 1 to 3 years
Vegetation Control: Teasel; buckthorn; honeysuckle.

Mowing: Every other year in non-prairie areas.

2003 Accomplishments and Observations

- ◆ Reseeded MI Stockpile with little bluestem.
- ◆ Burned prairie fall '03.
- ◆ Repaired washouts on MI Stockpile slopes.
- ◆ Removed woody invasive trees in wetland mitigation area.
- ◆ Removed buckthorn and honeysuckle crowding out three rare young kingnut hickories (*Carya laciniosa*).
- ◆ Applied herbicide to teasel.

2004 Plan

- ◆ Regrade and seed any washouts that develop.
- ◆ Mow in non-prairie areas south of wetland mitigation area.
- ◆ Suspend burning in wetland mitigation area and monitor natural succession of ecosystem in spring.
- ◆ Review fire management plan for this area in summer.
- ◆ Monitor bird and butterfly usage.

◆ **ELM-5/Along the southern boundary of the site, adjacent to Butterfield Rd.**

Features

Habitat: Brush; 30-year-old trees

Wildlife: Breeding area for Bell's Vireo (*Vireo bellii*) and Yellow-Breasted Chats (*Icteria virens*)

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Control noxious weeds

Enrichment: N/A

Fire Management: N/A

Vegetation Control: Teasel

Mowing: Every other year

2003 Accomplishments and Observations

- ◆ Mowed under power lines.
- ◆ Cleared considerable brush under power lines.

- ◆ Applied herbicide to teasel.

2004 Plan

None.

◆ **ELM-6/South of Tevatron**

Features

Habitat: Plowed field; wetlands

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Wetland

Enrichment: N/A

Fire Management: N/A

Vegetation Control: N/A

Mowing: Trails

2003 Accomplishments and Observations

- ◆ Mowed trail.

2004 Plan

- ◆ Remove 5-10 acres from agricultural license.

◆ **ELM-7/Southeast corner of the site**

Features

Habitat: Early stage mesic prairie; pasture grass

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Prairie; grassland Maximize usefulness for potential future Environmental research.

Enrichment: N/A

Fire Management: N/A

Vegetation Control: N/A

Mowing: Every other year

2003 Accomplishments and Observations

- ◆ Mowed late summer.

2004 Plan

- ◆ Mow late summer.

◆ **ELM-8/West of Tract ELM-7**

Features

Habitat: Early stage mesic prairie; pasture grass; hardwood seedling nursery

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Maximize usefulness for potential future research

Enrichment: As resources permit

Fire Management: As resources permit

Vegetation Control: As resources permit

Mowing: Pasture grass every other year

2003 Accomplishments and Observations

- ◆ Mowed late summer.
- ◆ Replanted seedlings.

2004 Plan

- ◆ Burn spring '04.
- ◆ Continue to develop nursery.

◆ ELM-9/Eastern boundary north and south of Batavia Rd**

Features

Habitat: Sea of Evanescence, AE Sea, Eastern DUSAF Pond and Nepese Pond shorelines; emergent wetlands; wet prairie with mesic and upland features; remnant prairie; pasture grass in north and south; heavy mixed brush; planted trees; large white oak and ash (*Fraxinus americana*) in west

Wildlife: Brush birds; remnant-dependent meadow fritillaries (*Boloria bellona*) and eyed browns; remnant-associated coral hairstreaks (*Satyrium titus*) and Delaware skippers; wetland-dependent butterflies

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goals: Wetland and quality shorelines; remnant prairie and wet prairie; semi-permanently flooded Nepese Pond

Enrichment: Sedges; emergent vegetation; native wetland species; overseed desired species in prairie remnant

Fire Management: Burn prairie remnant every 1 to 3 years

Vegetation Control: Teasel; oriental bittersweet; hemlock

Mowing: Every other year; special consideration in areas marked for NERP project

2003 Accomplishments and Observations

- ◆ Mowed south of Batavia Rd.
- ◆ Applied herbicide to teasel, oriental bittersweet and hemlock.

2004 Plan

- ◆ Mow north of Batavia Rd.
- ◆ Extend sedge habitat along shoreline of lakes.
- ◆ Use GPS to get bottom elevations of Nepese Pond for creating of a contour map.
- ◆ Determine optimal water level for creating a semi-permanent hydroperiod and suggest water control structure to regulate the surface elevation of Nepese Pond relative to DUSAF Pond.
- ◆ Select trees to move to other areas on site, thereby maintaining mid-successional level of area.

***ELM tracts 9, 19 and 20 were combined into ELM-9.*

◆ **ELM-10/East of Tevatron, west of Eola Rd.**

Features

Habitat: Wetland; mesic prairie

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Wetland; prairie

Enrichment: With native prairie forbs

Fire Management: Every 1 to 3 years

Vegetation Control: Purple loosestrife

Mowing: Every other year

2003 Accomplishments and Observations

- ◆ Mowed.
- ◆ Reseeded with matrix seed those areas disturbed by utility construction.
- ◆ Applied herbicide to purple loosestrife.

2004 Plan

- ◆ Do not burn

◆ **ELM-11/Non-native grasslands adjacent to north and south Eola Rd. ****

Features

Habitat: Pasture grass; wetland pocket in south-central and Lake Law shoreline

Wildlife: Upland Sandpiper (*Bartramia longicauda*) and Henslow's Sparrows (*Ammodramus henslowii*); wintering owls

Research: NERP project *Feedback between plants, mycorrhizal fungi and soil nutrient dynamics*; several areas marked for soil sampling

Access: Open

Other: Tree nursery topsoil stockpile; Model Rocket Club site; Dog Training Area

Long Range Plan

Habitat Goal: Grassland; wetland

Enrichment: N/A

Fire Management: Burn wetland as resources permit

Vegetation Control: Undesirable non-native trees; purple loosestrife
Mowing: Every other year

2003 Accomplishments and Observations

- ◆ Mowed south of Batavia Rd.
- ◆ Applied herbicide to several widely scattered undesirable trees and purple loosestrife.

2004 Plan

- ◆ Mow north of Batavia Rd.
- ◆ Remove or herbicide more undesirable trees.

***ELM tracts 11, 15, 16 and 17 were combined as ELM 11.*

◆ **ELM-12/North of ELM-8**

Features

Habitat: Early stage mesic prairie; little bluestem monoculture; pasture grass

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Maximize usefulness for potential future environmental research

Enrichment: Pending evaluation

Fire Management: Pending evaluation

Vegetation Control: Pending evaluation

Mowing: Every other year

2003 Accomplishments and Observations

- ◆ Mowed.
- ◆ Overseeded little bluestem areas.

2004 Plan

- ◆ None

◆ **ELM-13/East of ELM-12**

Features

Habitat: Early stage mesic prairie; pasture grass

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Maximize usefulness for potential future environmental research

Enrichment: As resources permit

Fire Management: As resources permit

Vegetation Control: N/A

Mowing: Grasslands every other year

2003 Accomplishments and Observations

- ◆ Mowed.

2004 Plan

None.

◆ ELM-14/Between and south of Lake Law and AE Sea

Features

Habitat: Lake Law and AE Sea shorelines; oak-hickory woods; hedgerow along southern boundary; invasive brush

Wildlife: Bell's Vireos and Yellow-Breasted Chats

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Intermediate stage open scrub transitioning into brushy edge at woods

Enrichment: N/A

Fire Management: Every 3 to 4 years

Vegetation Control: Non-native trees; purple loosestrife

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Burned eastern half in spring '03.
- ◆ Applied pesticide to purple loosestrife.

2004 Plan

- ◆ Burn western half in spring '04.
- ◆ Limit control of non-native brush and trees to the most troublesome species.
- ◆ Maintain the thicket hedgerow along southern border.

***ELM tracts 15, 16 and 17 were combined with ELM-11*

◆ ELM-18/Wraps around north and west sides of Village

Features

Habitat: Mixed woods; lots of brush; many planted conifers and aesthetic trees

Wildlife: Wintering owls and mammals

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Natural succession

Enrichment: N/A

Fire Management: N/A

Vegetation Control: N/A

Mowing: Adjacent to Batavia Rd. for aesthetic reasons

2003 Accomplishments and Observations

- ◆ Mowed.

2004 Plan

- ◆ Mow.

***ELM tracts 19 and 20 were combined with ELM-9.*

◆ **ELM-21/Northeastern corner of site**

Features

Habitat: Young mesic prairie and upland prairie plantings

Wildlife: N/A

Research: Designated NERP Area

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Prairie **and** maximize usefulness for potential future environmental research

Enrichment: Enrich with native prairie forbs

Fire Management: Every 1 to 3 years

Vegetation Control: Teasel; oriental bittersweet; hemlock

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Enriched with grassy matrix.
- ◆ Burned fall '03.
- ◆ Applied pesticide to teasel, oriental bittersweet, and hemlock.

2004 Plan

- ◆ Burn fall, 2004.
- ◆ Control noxious weeds.

◆ **ELM-22/North of railroad, east of McChesney Rd.**

Features

Habitat: Old field with invasive brush

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Permanently changing to agricultural license for sod production

Enrichment: N/A

Fire Management: N/A

Vegetation Control: N/A

Mowing: N/A

2003 Accomplishments and Observations

None.

2004 Plan

None.

◆ ELM-23/North part of site south of railroad tracts, west of railhead storage

Features

Habitat: Prairie remnant

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Prairie

Enrichment: Overseed newer prairie areas

Fire Management: Every 1 to 3 years

Vegetation Control: N/A

Mowing: Non-prairie areas every other year

2003 Accomplishments and Observations

- ◆ Overseeded with prairie matrix and early-succession forbs.

2004 Plan

- ◆ Enrich new prairie areas.
- ◆ Monitor for remnant-dependent butterfly species.
- ◆ Burn fall, 2004.

◆ ELM-24/West part of site extending from Wilson St. to south of Giese Rd.

Features

Habitat: Woodland remnant; prairie

Wildlife: Remnant-associated great spangled fritillary (*Speyeria cybele*), northern pearly eyes (*Enodia anthedon*), gray commas (*Polygonia progne*) and banded hairstreaks (*Satyrium calanus*) in savanna-like openings at woodland edge

Research: 2 sets of deer exclosures; permanent transect for support of deer management program in Big Woods; NERP projects *Assessing impact of biological controls on garlic mustard*, *Effects of tree removal on ground cover in Big Woods at Fermilab*, *Bat house project*, and *IDNR forest watch monitoring*

Access: Open

Other: Lederman Education Center

Long Range Plan

Habitat Goal: Woodland with transitional habitat edges

Enrichment: Woodland understory species; plant trees in corridor to connect existing wooded areas

Fire Management: Every 1 to 3 years; exclude garlic mustard NERP project area

Vegetation Control: Teasel; buckthorn; honeysuckle

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Applied herbicide to teasel, buckthorn, and honeysuckle.
- ◆ Planted 110 balled trees and shrubs for Arbor/Earth Day.
- ◆ Replanted trees at old Arbor/Earth Day sites.

2004 Plan

- ◆ Barricade and eventually restore the unauthorized “road” from Giese Rd. to MI-12.
- ◆ Plant trees for Arbor/Earth Day.
- ◆ Enrich area with desirable woodland species.
- ◆ Consider creating pathways in wetland areas west of Frog Farm.

◆ **ELM-25/Along west side of site from Giese Rd. to south of Wilson St.**

Features

Habitat: Woods; wetland in northwest; new prairie

Wildlife: N/A

Research: N/A

Access: Open

Other: N/A

Long Range Plan

Habitat Goal: Woodland with transitional habitat edges; wetland; prairie

Enrichment: Overseed needed species in prairie

Fire Management: Prairie every 1 to 3 years

Vegetation Control: Teasel; buckthorn; cottonwood

Mowing: N/A

2003 Accomplishments and Observations

- ◆ Heavily enriched.
- ◆ Applied herbicide to teasel.
- ◆ Harvested for Riddle’s goldenrod (*Solidago riddellii*), stiff gentian (*Gentiana quinquefolia occidentalis*), and grass-leaved goldenrod (*Solidago graminifolia nuttallii*).

2004 Plan

- ◆ Enrich with appropriate upland or wetland species.
- ◆ Burn spring, 2004, using backfires to discourage brush while protecting desirable species with low fire tolerance (e.g. hawthorn).
- ◆ Chemically girdle isolated stands of buckthorn and cottonwood.
- ◆ Mow dogwoods. Possibly apply herbicide to large clones.
- ◆ Transplant small bur oaks in random locations, especially near the prairie side of the transition.

◆ **ELM-26/Along west side of site south of ELM-24, includes western part of Main Injector**

Features

Habitat: Prairie

Wildlife: N/A

Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Prairie
Enrichment: Overseed needed species
Fire Management: Every 1 to 3 years
Vegetation Control: Teasel
Mowing: Non-prairie areas every other year

2003 Accomplishments and Observations

- ◆ Harvested bottle gentian (*Gentiana andrewsii*), yellowish gentian (*Gentiana flavida*), early goldenrod (*Solidago juncea*).
- ◆ Burned spring, 2003.

2004 Plan

- ◆ Burn western section spring, 2004.

◆ **ELM-27/Along Indian Creek inside Main Injector**

Features

Habitat: Floodplain woods with swampy areas
Wildlife: Dion skippers
Research: N/A
Access: Controlled
Other: N/A

Long Range Plan

Habitat Goal: Floodplain woods; wetland
Enrichment: Plant trees; enrich understory; enrich wetlands
Fire Management: N/A
Vegetation Control: Noxious trees
Mowing: N/A

2003 Accomplishments and Observations

- ◆ Removed noxious trees along creek.

2004 Plan

None

◆ **ELM-28/Northeast of Tevatron berm**

Features

Habitat: Prairie
Wildlife: N/A
Research: NERP project *Investigation of carbon dioxide and nitrogen fluxes in terrestrial ecosystems at Fermilab*
Access: Open
Other: N/A

Long Range Plan**Habitat Goal:** Prairie**Enrichment:** Enrich intensively as resources permit**Fire Management:** Every 1 to 3 years**Vegetation Control:** N/A**Mowing:** N/A**2003 Accomplishments and Observations**

- ◆ Overseeded with prairie matrix.
- ◆ Burned spring, 2003.

2004 Plan

- ◆ Overseed with prairie matrix as necessary.

**Appendix A: 2003 Catalog of Woodland and Prairie Species Collected Summer Intern
(Checked vs. Dick Young, Kane County Wild Plants and Natural Areas, 2nd Ed.)**

Woodland Species

Hepatica acutiloba/sharp-lobed hepatica
Dicentra cucullaria/Dutchman's breeches
Trillium grandiflorum/white trillium
Hydrastis canadensis/goldenseal
Uvularia grandiflora/bellwort
Lithospermum latifolium/broad-leaved puccoon
Hystrix patula/bottlebrush grass
Actaea pachypoda/white baneberry
Quercus alba/white oak
Quercus rubra/red oak
Quercus macrocarpa/bur oak
Iris virginica/blue-flag iris
Juglans cinerea/butternut
Eupatorium purpureum/purple Joe Pye weed
Arisaema atrorubens/Jack-in-the-pulpit
Arisaema dracontium/green dragon
Blephilia hirsuta/hairy wood mint
Campanula americana/tall bellflower

Prairie Species

Pedicularis canadensis/wood betony
Hypoxis hirsuta/yellow stargrass
Heuchera richardsonii/alum root
Panicum leibergii/prairie panic grass
Sisyrinchium albidum/blue-eyed grass
Phlox pilosa/prairie phlox
Polygala senega/Seneca snakeroot
Carex bicknellii/Bicknell sedge
Anemone canadensis/meadow anemone
Lobelia spicata/pale-spiked lobelia
Tradescantia ohioensis/spiderwort
Allium canadense/wild onion
Lathyrus palustris/marsh vetchling
Dodecatheon meadia/shooting star
Phlox glaberrima/marsh phlox
Zizia aurea/golden Alexanders
Thalictrum sp./meadow rue
Desmodium canadense/showy tick trefoil
Veronicastrum virginicum/Culver's root
Dalea purpureum/purple prairie clover
Liatris spicata/dense blazing star
Andropogon scoparius/little bluestem